

1 CLAIMS

We claim:

1. A fuel additive composition intended to be used at a dose level of from about 20 to about 500ppm by weight in a liquid hydrocarbon fuel combusted in internal
5 combustion machines, said composition comprising, in admixture form:
- (a) from about 10 to about 57.2% by weight of water;
 - (b) from about 28.9 to about 80% by weight of a surfactant selected from the group consisting of:
 - 10 (i) non-ionic
 - (ii) anionic
 - (iii) cationic
 - (iv) amphoteric and
 - (v) combinations of one or more of said (i) through (iv) surfactants;
 - (c) from about 0 to about 27.5% by weight of a co-surfactant selected from the
15 group consisting of:
 - (i) low molecular weight alcohols
 - (ii) low molecular weight glycols
 - (iii) glycol ethers and
 - (iv) combinations of one or more of said (i) through (iii) co-surfactants;
 - 20 (d) from about 0 to about 30% by weight of a hydrocarbon solvent.
2. The fuel additive composition of claim 1 wherein the liquid hydrocarbon fuel is selected from the group consisting of gasoline, diesel fuel and jet fuel.
- 25 3. The fuel additive composition of claim 1 wherein the water comprises from about 16.7 to about 33.8% by weight of said composition.

- 1 4. The fuel additive composition of claim 1 wherein the surfactant comprises from about 49.9 to about 72.5% by weight of said composition.
- 5 5. The fuel additive composition of claim 1 wherein the surfactant is a combination of amine alkylbenzene sulphonate, POE (20) sorbitan monooleate, tall oil fatty acids, oleyl imidazoline hydrochloride and oleamide diethanolamine.
6. The fuel additive composition of claim 1 wherein the co-surfactant comprises from about 13.9 to about 21.9% by weight of said composition.
- 10 7. The fuel additive composition of claim 1 wherein the co-surfactant is selected from the group consisting of: methanol, ethanol, propanol, butanol, ethylene glycol, propylene glycol, ethylene glycol n-butyl ether and dipropylene glycol methyl ether or combinations thereof.
- 15 8. The fuel additive composition of claim 1 wherein the hydrocarbon solvent is kerosene.
9. The fuel additive composition of claim 1 wherein the hydrocarbon solvent is
20 absent.
10. A micro-emulsion fuel composition intended to be combusted in internal combustion machines, said composition comprising:
- 25 (a) from about 999,500 to about 999,980ppm by weight of a liquid hydrocarbon fuel;
- (b) from about 11 to about 400ppm by weight of a surfactant selected from the group consisting of:

- 1 (i) non-ionic
(ii) anionic
(iii) cationic
(iv) amphoteric and
- 5 (v) combinations of one or more of said (i) through (iv) surfactants;
(c) from about 0 to about 100ppm by weight of a co-surfactant selected from the group consisting of:
- 10 (i) low molecular weight alcohols
(ii) low molecular weight glycols
(iii) glycol ethers and
(iv) combinations of one or more of said (i) through (iii) co-surfactants;
- (d) from about 0 to about 150ppm by weight of a hydrocarbon solvent;
(e) from about 5 to about 95ppm by weight of added water, such that the weight ratio of said surfactant to said added water falls within the range of from about 8:1 to about 0.5:1.
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11. The fuel composition of claim 10 wherein the liquid hydrocarbon fuel comprises from about 999,750 to about 999,917ppm by weight of said composition.
- 20 12. The fuel composition of claim 10 wherein the liquid hydrocarbon fuel is selected from the group consisting of gasoline, diesel fuel and jet fuel.
13. The fuel composition of claim 10 wherein the surfactant comprises from about 48 to about 130ppm by weight of said composition.

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- 1 14. The fuel composition of claim 10 wherein the surfactant is a combination of amine alkylbenzene sulphonate, POE (20) sorbitan monooleate, tall oil fatty acids, oleyl imidazoline hydrochloride and oleamide diethanolamine.
- 5 15. The fuel composition of claim 10 wherein the co-surfactant comprises from about 21 to about 42ppm by weight of said composition.
- 10 16. The fuel additive composition of claim 10 wherein the co-surfactant is selected from the group consisting of: methanol, ethanol, propanol, butanol, ethylene glycol, propylene glycol, ethylene glycol n-butyl ether and dipropylene glycol methyl ether or combinations thereof.
17. The fuel composition of claim 10 wherein the hydrocarbon solvent is kerosene.
- 15 18. The fuel composition of claim 10 wherein the hydrocarbon solvent is absent.
19. The fuel composition of claim 10 wherein the added water comprises from about 20 to about 85ppm by weight of said composition.
- 20 20. The fuel composition of claim 10 wherein the weight ratio of said surfactant to said added water falls within the range of from about 3:1 to about 1.5:1.